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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,196	10/10/2000	Timothy R. Miller	195273US8	4307
23400	7590	01/25/2005	EXAMINER	
POSZ & BETHARDS, PLC 11250 ROGER BACON DRIVE SUITE 10 RESTON, VA 20190			CHANG, EDITH M	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/685,196	MILLER ET AL.	
	Examiner Edith M Chang	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 September 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6,8-20 and 22-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-4,8-20,22-25 and 29 is/are rejected.  
 7) Claim(s) 5,6,26-28 and 30 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 10 October 2000 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments/Remarks***

1. Applicant's arguments, see pages 15-24, filed September 17, 2004, with respect to the rejection(s) of claim(s) 1-6, 8-20, and 22-25 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Struhsaker et al. to claims 1-4, 9-12, 17 and 29; in view of Sawahashi et al. to claims 13 and 14.

### ***Claim Objections***

2. Claims 5-6, 9-16, 20, and 24-30 objected to because of the following informalities:
    - Claim 5, line 2: "a correlation" is suggested changing to "the correlation".
    - Claim 9, line 3: "UWB" is suggested changing to "incoming UWB"; lines 7 & 10: "the incoming" is suggested changing to "said incoming".
    - Claim 20, line 2: "detecting" is suggested changing to "detecting arms"; line 3: "a first" is suggested changing to "the first"; line 6: "a second" is suggested changing to "the second".
    - Claim 26, lines 9 & 18: "arm" is suggested changing to "detecting arm".
    - Claim 27, line 3: "arm" is suggested changing to "detecting arm"; "a second" is suggested changing to "the second".
    - Claim 29, line 3: "UWB" is suggested changing to "incoming UWB".
- Claims 6, 10-16, 24-25, 28, and 30 are directly or indirectly dependent on the objected claims 5, 9, and 26.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 9-16, and 24-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 9, lines 8 & 11, the term “configured to demodulate data from the incoming UWB signal” does not taught in the specification or the disclosure of the drawing. In claim 9, the system comprises a first correlator and a second correlator; and each correlator configured to correlate the incoming pulses with the local pulses respectively to produce a correlation function, and configured to *demodulate* data from the incoming UWB signal. However in the Figure 2 the correlators 31<sub>1-N</sub> only output the produced correlation functions to the controller 9, and in the Figure 3 the correlator (Arm1 or Arm2) only outputs the produced correlation function to the controller 110.

Claims 10-16, and 24-25 are dependent on the rejected claim 9.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 8-20, and 22-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8, line 1: “the predetermined threshold” lacks antecedent basis.

Claim 9, lines 8 & 11, the term “configured to demodulate data from the incoming UWB signal” does not indicate clearly how the correlator is configured to demodulate data.

Claims 15 & 24, line 2: “a first detecting arm”; and line 3: “a second detecting arm” do not clearly indicate what are the relations or connections to the “a first correlator” and “a second correlator”.

Claim 17, lines 11 & 13-14: “the first and second detecting arms” lacks antecedent basis.

Claim 18, lines 13-14: “the predetermined threshold” does not clearly indicate which predetermined threshold, the one cited in lines 10-11 or the one cited in line 12; lines 15-16: “the detecting arm” lacks antecedent basis.

Claim 20, lines 8-9: “the detecting arm” lacks antecedent basis.

Claim 22, line 11: “a first detecting arm”; and line 12: “a second detecting arm” do not clearly indicate what are the relations or connections to the “a correlator” cited in line 6; line 17: “the detecting arm” lacks antecedent basis.

Claims 10-14, 16, 19, 23, and 25 are directly or indirectly dependent on the rejected claims 9, 18, and 22.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, 9-12, 17, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Struhsaker et al. (US 6,128,331).

To claims 1-2, 9-10, 17, and 29 in the drawing, Struhsaker teaches a direct sequence correlator system and its method. In the drawing, it comprises:

the RF down converter (12) receiving the direct sequence, spread spectrum modulated data signals (the DS-SS modulated data signals are ultrawide bandwidth signals) from the air link via the antenna wherein received spreaded signals are pulses occurring at a predetermined interval (the distance/chips between pulses in time);

the reference PN (the first local pulses) generated via a first signal generator (REFERENCE PN);

the PN<sub>1-X</sub> (second local pulses) generated via a second signal generator (PN<sub>X</sub>);

the correlator circuit (18, as the first correlator or detecting arm) correlating the received signals with the REFERENCE PN to produce a first correlation function (the output of 22), and demodulating the received spreaded signals;

the correlator circuit (20, as the second correlator or detecting arm) correlating the received spreaded signals with the PN<sub>1-X</sub> to produce a second correlation function (the output of

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28) and configured to demodulate the received spreaded signals by sending the MAX PN to the quadrature demodulator (24, column 4 lines 24-32); and

the synchronization processor (34, column 4 lines 2-8) select the first correlator circuit (18) to track (identify the phase) the received spreaded signals based on the first correlation function from the correlator 22 and the second correlation function from correlator 28 in terms of providing/select the MAX PN to correlator 18; and the correlator circuit 20 performing the search/acquisition (a phase refining function, column 5 lines 4-6) to correlate REFERENCE PN and PN<sub>1-X</sub> with the received spreaded signals.

**To claims 3-4 & 11-12,** Struhsaker teaches the received spreaded signals are bi-phase modulated, quadrature phase modulated (I/Q symbol & quadrature demodulator 24); and multilevel pulse (as the signals of wireless LANs, column 1 lines 10-14).

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Struhsaker et al. (US 6,128,331) in view of Sawahashi et al. (US 5,768,306).

**To claims 13-14,** even Struhsaker does not explicitly show the detail structure of the correlator to produce a plurality of correlation values, it is well known that the correlator comprising the phase adjuster adjusting the spread code sequence and the accumulator to

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calculate the correlation function taught by Sawahashi FIG.6 wherein the voltage controlled clock generator 48 is the phase adjuster, and the accumulator 57 is the calculator. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the voltage controlled clock generator and the accumulator implemented in Struhsaker's first correlator circuit to compact the correlator in a smaller size, for the purpose of having a sliding correlator that can establish synchronization quickly (column 3 lines 57-67).

***Allowable Subject Matter***

11. Claims 5-6, 26-28, and 30 would be allowable if rewritten to overcome the objections listed in the paragraph 2 of this Office action.
12. Claims 8, 19 and 20 would be allowable if rewritten to overcome rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. Claims 18-19, and 22-23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
14. The following is a statement of reasons for the indication of allowable subject matter:  
The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a system for identifying a phase of an incoming ultrawide bandwidth (UWB) signal and its method as a whole, the combination of elements and features, which includes a selector to compare the first correlation value of the first detecting arm and the second correlation value of the second detecting arm and to select one of the first and second detecting

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arms with a higher correlation value to perform the identifying the phase of the incoming UWB as cited in the claims.

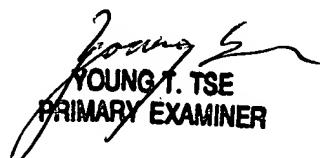
***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang  
January 12, 2005



YOUNG T. TSE  
PRIMARY EXAMINER